

Symposium: From Tensions to Opportunities: Evidencing Mathematics Leadership

Kate Copping

The University of Melbourne
kcopping@unimelb.edu.au

Matt Sexton

Australian Catholic University
matthew.sexton@acu.edu.au

Bernadette Pearce

Catholic Education Sandhurst
bpearce@ceosand.catholic.edu.au

Lauren Gould

Catholic Education Sandhurst
lgould@ceosand.catholic.edu.au

Natasha Ziebell

The University of Melbourne
ziebelln@unimelb.edu.au

Ann Downton

Monash University
ann.downton@monash.edu

Andrea O'Connor

Catholic Education Sandhurst
aoconnor@ceosand.catholic.edu.au

Peter Grootenboer

Griffith University
p.grootenboer@griffith.edu.au

This symposium offers insights into the leadership enacted by those who lead the mathematics education professional learning of in-service teachers in schools. We provide evidence of mathematics leadership practice as a way of contributing knowledge to this undertheorised area of mathematics education research. Three separate accounts of mathematics leadership are reported, with two focused on leading enacted in primary school settings, whilst the third paper highlights the support offered to rural and regional mathematics leaders through a sector-wide leadership network initiative.

Although separate accounts of leadership are presented, each paper is connected through the ways that tensions in practice provided opportunities for mathematics leaders to develop leading practices within the spaces in which their leadership was enacted. In this symposium, the relational dimension of mathematics leadership is highlighted, providing evidence of the critical role that relationships play in the ways that mathematics leadership responds to tensions as opportunities for practice development.

The format of the symposium is as follows:

Chairs: Matt Sexton and Ann Downton.

Paper 1: *Evidencing How Primary Mathematics Leaders Balance the Supports and Challenges of Their Role.*

Kate Copping & Natasha Ziebell.

Paper 2: *Evidencing Mathematics Leadership as Relational and Developmental Activity.*

Matt Sexton & Ann Downton.

Paper 3: *Evidencing Sector Leadership for Mathematics Leaders Working in Rural and Regional Schools.*

Bernadette Pearce, andrea O'Connor, & Lauren Gould.

Discussant: Peter Grootenboer.

Evidencing How Primary Mathematics Leaders Balance the Supports and Challenges of Their Role

Kate Copping

The University of Melbourne

kopping@unimelb.edu.au

Natasha Ziebell

The University of Melbourne

ziebelln@unimelb.edu.au

Primary mathematics leaders work together both with and between school leadership and teachers as middle leaders, balancing expectations and responsibilities of themselves, school leadership, and teachers. This paper presents a case study of mathematics leaders in a school with a diverse community and frequently changing staff. It explores the tensions in this school and the supports that help the mathematics leaders find opportunities to respond. Findings show that building relationships and trust with staff were essential to address challenges and meet the needs of the school.

Primary mathematics leaders (PMLs) are middle leaders working with and between school leaders and teachers with a recognised responsibility for improving student learning (Copping, 2022). Mathematics leadership is a multi-faceted and complex role that includes balancing both management and leadership responsibilities to improve teacher impact on student learning (De Nobile, 2017; Gurr & Drysdale, 2013). This paper focuses on the following research question: How do PMLs balance the challenges and supports within their role at a metropolitan school in Melbourne? A case study is reported from one school, Wattle Tree Primary School (WTPS), which has the unique situation of having two mathematics leaders. The narrative incorporates viewpoints of mathematics leaders and others to convey the challenges and supports for primary mathematics leadership at WTPS. Pseudonyms have been used throughout this paper.

Literature Background

Primary mathematics leaders play a strategic role in the improvement of mathematics practices as the critical link between a school's vision and the work enacted in classrooms, working with school leaders and directly with teachers (Leithwood, 2016). In Australia, middle leaders often have a teaching aspect to their role, maintaining current classroom practice, while also working with teachers in other classrooms (Grootenboer et al., 2015). Teachers therefore view middle leaders as still being connected to the classroom and practising alongside them. Concurrently, middle leaders work with school leadership guiding a strategic, whole-school approach to teaching and learning (De Nobile, 2017). A significant role associated with PMLs is ensuring that professional development is localised and targets the specific needs of the school, teachers, and students. Leading this professional learning (PL) in a school requires the development of relational trust with all participants (Grootenboer & Edwards-Groves, 2020).

Common practices of successful middle leaders focus on student learning and teacher development through fostering a clear vision and strategy, collective responsibility, and trust, with high expectations of themselves and others (De Nobile, 2017; Gurr & Drysdale, 2013). These ideas were developed further in a framework of middle leadership, which underpins this research exploring the roles and responsibilities of PMLs. The framework is designed for exploring the roles of middle leaders, as distinct from senior leadership positions, such as a principal's role (De Nobile, 2019). It is important to note that this framework is not a discipline-based model of leadership, but it can be applied to the roles and responsibilities of a primary mathematics leader. The six role aspects are "Student focussed, Administrative, Organisational, Supervisory, Staff development, and Strategic" (De Nobile, 2019, p. 3). This framework of role aspects is situated along a continuum from predominantly managerial tasks at one end to leadership aspects on the other end, reflecting the diverse responsibilities of the role. Each stage supports and enables more effective enactment in the subsequent level.

A key aspect of success in the leadership role is attributed to the principal's support for a PML by showing trust in the middle leader's expertise, as well as providing the time, organisation, and resourcing to support change and professional learning (Grootenboer et al., 2020). A shared understanding by all staff of their roles and responsibilities is important to attain a school's goals. However, there are contextual factors that can influence or challenge the success of this collective understanding, including time allocation for the role and teachers' experience (Copping, 2023). Challenges for PMLs identified by Driscoll (2017), included: time, leader's expertise, teacher knowledge, and funding. Furthermore, Sexton and Downton (2014) noted the impact of time constraints on the ability to fulfil leadership duties and the difficulty faced in sustaining improvements in changed practices. The research in this paper investigated supports and challenges, such as these, experienced by PMLs at WTPS.

Methodology

This case study forms part of a PhD research project examining how primary mathematics leadership is conceptualised and experienced. A phenomenological approach (Heidegger 2008/1928) has been utilised to acknowledge the experiences, perceptions, and understandings from the participants. The wider project included eight schools within the state of Victoria. Interviews were conducted with the PML/s, a school leader, and two teachers at each school to investigate how primary mathematics leadership was conceptualised and experienced by those in the role, and by those with whom they work. This paper reports on interviews from WTPS, a Government, Foundation to Year 6 school in the northern suburbs of metropolitan Melbourne. At the time of data collection WTPS had an enrolment of ≈ 400 students. The diverse school community was well below average in socio-educational advantage ($>90\%$ English as an Additional Language).

Semi-structured interviews were conducted with five participants at WTPS: Mia, PML for Years 3–6, Zara, PML for F–Year 2 (both worked three days as mathematics leaders and two days as classroom teachers), Assistant Principal Holly, experienced teacher Anna, and graduate teacher Justin. The semi-structured interviews varied slightly depending on the role of the participant. Participants were asked what challenged or supported the PMLs in their role. Interview data was analysed using an inductive approach to identify, summarise, and refine themes (Thomas, 2006), which was then applied to the Framework for Middle Leadership (De Nobile, 2019) to support interpretation of the analysis.

Results and Discussion

Zara (PML F–2) was new to the school and role but had been a primary mathematics specialist at her previous school. Mia (PML 3–6) had been the mathematics leader in the school for more than 5 years. Tensions faced at WTPS by the PMLs were recognised by all participants, as well as supports available which presented opportunities for action.

Consistency of the Instructional Program

Staff turnover at the school was high and there was a large proportion of graduate teachers. The school population was changing with families moving in and out frequently with some students attending an intensive English language school part time on site. Due to these regularly changing circumstances, the school's focus was on consistency of the instructional program. The PMLs were responsible for supporting staff to implement the instructional program, acting in a *Supervisory* role (De Nobile, 2019). This was identified as a clear expectation by all participants, and an area of tension for the PMLs, as Anna stated:

It's been quite a high turnaround of staff ... there is an instructional model in place in terms of how mathematics is expected to run. But because of Covid, because of the high turnaround of staff, it's hard to then, disseminate it to others, when you're constantly having to start again, start from fresh.

Sustaining and maintaining an instructional model with a consistent approach has been previously recognised as a challenge for PMLs (Sexton & Downton, 2014). Both Zara and Mia acknowledged this as an issue. In response, they enacted their *Staff development* role (De Nobile, 2019), and conducted whole school PL sessions together and participated in coaching sessions with individual teachers, on a needs-based approach. Crucially, Zara and Mia harnessed the opportunity to focus on the development of supportive, trusting relationships (Grootenboer & Edwards-Groves, 2020) to aid in the implementation of the instructional model and address the challenge of changing staff. Mia stated:

I also think it's the good relationships that I have with the teachers. Because the teachers trust me and especially when we do coaching...it's personal conversation, and I'm not going to be sharing this to other people, and it's confidentiality and non-judgmental. So, teachers give me their trust.

Consistency of Timetabling

Time was another recognised area of tension by all participants. Covid implications resulted in days timetabled for leadership work being used to cover teacher absences. Timetabling and coaching sessions were affected and the *Staff development* role (De Nobile, 2019) was not able to be implemented as planned. Holly stated:

It's [the PMLs] being used as CRTs [Casual Relief Teachers] a little bit at the moment, and then the coaching disruptions. The inability sometimes to do that part around the conversation after coaching. That's a challenge, because then I'm not able to support with that time.

Zara and Mia's time for mathematics leadership was affected by teacher absences and staffing issues, as Zara said, "Obviously the absences and not being able to do the coaching is a massive challenge." This impacted their opportunity to get into classrooms and to enact their plans as intended. They experienced frustration due to time constraints (Driscoll, 2017). However, this challenge was recognised by the leadership team, as Holly said, "Also giving them that time out of the classroom, I think is essential." The support of school leadership was evident (Grootenboer et al., 2020) with extra time provided where possible. The PMLs also adjusted their schedules to find opportunities to support teachers, as Mia explained:

I try to, even though time is a challenging issue for me, but I still try to, whenever I'm available, I get to make-up my coaching or I get to meet this teacher catch up with teacher ... even though sometimes I lose my lunch or I lose my time, but I still, I still want to support people.

Being a Middle Leader

Tension was noted by participants that working with and between school leadership and teachers requires balancing leadership, *Administrative*, and *Organisational*, responsibilities (De Nobile, 2019). Justin stated, "Being part of leadership here, I know you do get roles outside your maths domain." Zara also noted that managing leadership duties was challenging, "It is hard, and I find I'm unfortunately the kind of person that just, especially when you're in leadership, I take on all those things that I can't control." These extra duties can be draining on middle leaders and it is important that PMLs do not get overwhelmed by administrative responsibilities (Grootenboer et al., 2020). However, the support between Mia and Zara to help manage their roles was widely noted by the participants, particularly Zara:

Mia is an amazing support because she's, one, been at the school for, for longer than me, but also she's got great maths knowledge. But also just, she's further along in her leadership journey... So, um, she's been great to talk to about what's going on and how possibly to approach.

Additionally, participants discussed the support the PMLs had from school leadership noting the principal trusted the PMLs and valued their role (Grootenboer et al., 2020). Zara discussed the possibilities of her role, saying, "I think that the, the principal is very supportive of the role and that is massive ... I know that it's really valued." While Mia stated, "My principal trusts that I'm doing my job well ... I get my opportunity to work with teachers and work with

students.” Both identified the opportunities present while acknowledging the challenges they face and that supportive relationships built on trust are essential to their role.

Conclusion

Balancing the responsibilities and roles of PMLs, such as leadership, staff development, supervisory, administration, and organisation (De Nobile, 2019) was impacted by the school’s needs and resources (e.g., human, time). However, supports were in place which afforded opportunities to address these tensions. One of the most significant findings was the development of trust between the two PMLs, between school leadership and PMLs, and between teachers and PMLs. The nurturing of supportive relationships enabled the PMLs to meet challenges with the development of relational trust being central to their success. Support and trust were not one-way, but multi-layered and multi-directional. For PMLs and school leaders, the relationships between and within PMLs, school leadership, and teachers are important to build and maintain, as it is the relationships and the support offered through them which provide opportunity to address tensions within schools.

Acknowledgements

Ethics approval 1851770 was granted by the University of Melbourne, and participants gave informed consent.

References

- Copping, K. (2022). Perceptions of the role of primary mathematics leaders. In N. Fitzallen, C. Murphy, V. Hatisaru, & N. Maher (Eds.), *Mathematical confluences and journeys. Proceedings of the 44th annual conference of the Mathematics Education Group of Australasia*, (pp. 146–153). Launceston: MERGA.
- Copping, K., Ziebell, N., & Seah, W.T. (2023). Shared expectations? An exploration of the expectations between primary mathematics leaders and teachers. In M. Ayalon, B. Koichu, R. Leikin, L. Rubel., & M. Tabach (Eds.), *Proceedings of the 46th Conference of the International Group for the Psychology of Mathematics Education* (Vol 2, pp. 195–202). PME.
- De Nobile, J. (2017). Towards a theoretical model of middle leadership in schools. *School Leadership & Management*, 38(4), 395–416. <https://doi.org/10.1080/13632434.2017.1411902>
- De Nobile, J. (2019). The roles of middle leaders in schools: Developing a conceptual framework for research. *Leading & Managing*, 25, 1–14.
- Driscoll, K. (2017). Primary school mathematics leaders’ views of their mathematics leadership role. In A. Downton, S. Livy, & J. Hall (Eds.), *40 years on: We are still learning. Proceedings of the 40th annual conference of the Mathematics Education Research Group of Australasia* (pp. 213–220). MERGA.
- Grootenboer, P., & Edwards-Groves, C. (2020). Educational middle leading: A critical practice in school development. *Leading & Managing*, 26(1), 23–30.
- Grootenboer, P., Edwards-Groves, C., & Rönnerman, K. (2015). The practice of “middle leading” in mathematics education. In M. Marshman, V. Geiger, & A. Bennison (Eds.), *Mathematics education in the margins. Proceedings of the 38th annual conference of the Mathematics Education Group of Australasia*, (pp. 277–284). MERGA.
- Grootenboer, P., Edwards-Groves, C., & Rönnerman, K. (2020). *Middle leadership in schools: A practical guide for leading learning*. Routledge.
- Gurr, D., & Drysdale, L. (2013). Middle-level secondary school leaders: Potential, constraints and implications for leadership preparation and development. *Journal of Educational Administration*, 51(1), 55–71. <https://doi.org/10.1108/09578231311291431>
- Heidegger, M. (2008/1928). *Ontology: The hermeneutics of facticity*. Indiana University Press.
- Leithwood, K. (2016). Department-head leadership for school improvement. *Leadership and Policy in Schools*, 15(2), 117–140. <https://doi.org/10.1080/15700763.2015.1044538>
- Sexton, M., & Downton, A. (2014). School mathematics leaders’ perceptions of successes and challenges of their leadership role within a mathematics improvement project. In J. Anderson, M. Cavanagh & A. Prescott (Eds.), *Curriculum in focus: Research guided practice. Proceedings of the 37th annual conference of the Mathematics Education Group of Australasia* (pp. 581–588). MERGA.
- Thomas, D. R. (2006). A general inductive approach for analyzing qualitative evaluation data. *American Journal of Evaluation*, 27(2), 237–246. <https://doi.org/10.1177/1098214005283748>